

REMARKS

Claims 1-22 are pending in the above-captioned application. Claims 2, 10, 12, 13, 16, 17-20, and 22 have been amended herein in order to more clearly define and fully protect Applicant's invention. Reconsideration and allowance of all claims 1-22 is respectfully requested.

Objection to the Specification

The specification is objected to as failing to provide proper antecedent basis for the recitation in claim 10 of electrical conductivity less than about 8 μ ohm-meters. Claim 10 has been amended herein in order to correct the recitation from electrical conductivity to electrical resistivity as is pointed out in the Official Action.

Objections to Claims

Claim 16 is objected to as being in improper, independent form. Claim 16 has been amended herein in order to replace the reference to the "material of claim 1" with the recitation of the specific material referred to. Therefore, claim 16 is no longer in objectionable form and the objection should be withdrawn.

Claim Rejections Under 35 U.S.C. § 112

Claims 2, 4-5 and 12-22 stand rejected under 35 U.S.C. §112 as assertively being indefinite as described hereinbelow.

Claims 2 and 13 recite the limitation “the intercalant” and it is asserted in the Official Action that there is insufficient antecedent basis for this limitation. By amendment herein, claims 2 and 13 now replace the expression the “intercalant” with the expression the “intercalation compounds”. The antecedent basis for this limitation appears in claims 1 and 12 respectively.

Claims 2, 5, 15, and 16 are rejected in that the limitation “a material” has insufficient antecedent basis. This limitation has been deleted from claims 2 and 13.

Claims 4 and 15 include the limitation “a graphite intercalation compound” and it is asserted that there is insufficient antecedent basis for this limitation. Given that claims 1 and 12 from which claims 4 and 15 depend each recite a graphite intercalation compound, it is believed that proper antecedent basis for the expression in claims 4 and 15 is present.

The expressions “such as” and “to an extent necessary” in claim 12 are rejected as assertively rendering claim 12 indefinite. These phrases have been deleted from claim 12.

Claims 17-20 and 22 are rejected as including the limitation “the final sheet” in that it is asserted that there is insufficient antecedent basis for this limitation. By amendment herein, the expression “final” has been replaced by the expression “compressed” for which antecedent basis appears in claim 12 from which the rejected claims depend.

Accordingly, each of the rejections under 35 U.S.C. §112 has been overcome or, in one case, been shown to be inappropriate. This being the case, withdrawal of the rejection is appropriate and is requested.

Prior Art Rejections

Claims 1-10, 12-20 and 22 stand rejected under 35 U.S.C. §102(b) over Mercuri (U.S. 5,846,459); claims 1-2, 5-13, and 16-22 stand rejected under 35 U.S.C. §102(b) over Shane et al. (U.S. 3,404,061); claims 11 and 21 stand rejected under 35 U.S.C. §103(a) over Mercuri further in view of Mercuri et al. (U.S. 5, 902,762). In fact, these rejections result from a misapplication of the cited art to the claims and invention of the above-captioned application.

In each of the cited prior art references, raw graphite flake is exposed to graphite intercalants. The thus intercalated flake is then exposed to high temperatures in order to exfoliate the flake, and thereafter the exfoliated "worms" are compressed into flexible graphite sheet. It is important to note that the very process of exfoliation vaporizes the intercalants for, indeed, it is this vaporization which causes expansion of the graphite flake to form "worms". Thus, the intercalants do not remain in the flake after exposure to heat.

In the present invention, already formed graphite sheet is exposed to graphite intercalation compounds, which intercalate into the sheet and remain present. These graphite intercalation compounds, as taught, can provide different characteristics to the sheet than are observed by the standard preparation in which the intercalants

vaporize. Indeed, as noted, many different intercalation compounds can be used in this post-sheeting intercalation including halogens, transition metals, etc. This difference between processing is especially clear from claim 12 which recites that the sheet of exfoliated graphite particles is intercalated rather than raw graphite itself, as in the cited references. Thus, the cited references cannot and do not anticipate the inventions of the rejected claims nor do they suggest intercalating an already formed sheet of flexible graphite.

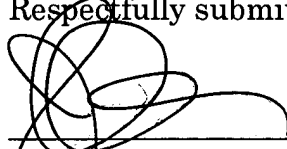
Accordingly, none of claims 1-22 is anticipated or suggested by the cited references. Withdrawal of the rejections under 35 U.S.C. §102(b) and 35 U.S.C. §103(a) is therefore appropriate and requested.

CONCLUSION

Based on the foregoing amendments and remarks, it is believed all claims 1-22 are now in condition for allowance. Such action is earnestly sought. If there remains any matter which prevents the allowance of any of the pending claims, the Examiner is requested to call the undersigned, collect, at 615-242-2400 to arrange for an interview which may expedite prosecution.

The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Response to Deposit Account 50-1202.

Respectfully submitted,



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